Code: 9A12302

**1**

B.Tech II Year II Semester (R09) Regular & Supplementary Examinations, April/May 2013
**DATA COMMUNICATION SYSTEMS**
(Computer Science and Systems Engineering)

Time: 3 hours                                                                 Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1  (a)  Briefly explain file server operation and its components.
   (b)  Explain the functionality of network interface card (NIC) with the neat sketch.

2  (a)  Compare balanced and unbalanced transmission lines.
   (b)  Compare three types of optical fiber configurations.

3  (a)  Define digital transmission. Contrast the advantages and disadvantages of digital transmission.
   (b)   Explain digital compression error.

4       Explain the components that make up a microwave radio link.

5       Write short notes on:
   (a)  C-type line conditioning.
   (b)  D-type line conditioning.

6  (a)  Explain the personal communications system with neat sketch.
   (b)  Explain about EIA/TIA interim standard IS-54.

7  (a)  Determine the BCC for the following DATA and CRC generating polynomials:
           $G(x) = x^8 + x^5 + x^2 + x^0$
           $P(x) = x^5 + x^4 + x^1 + x^0$
   (b)  Briefly describe how vertical redundency checking accomplishes error detection.

8  (a)  Describe the functions of a channel service unit and digital service unit.
   (b)  Describe the two classifications for voice-band modems.

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**2**

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**DATA COMMUNICATION SYSTEMS**

(Computer Science and Systems Engineering)

Time: 3 hours                                                                 Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1  (a)  Explain various network topologies with neat diagrams.
   (b)  Define analog modulation. Describe phase analog modulation.

2  (a)  Describe the characteristics of parallel-conductor transmission lines.
   (b)  Briefly describe metallic transmission line losses.

3  (a)  Define sampling rate and explain with neat sketch.
   (b)  Explain frequency-division multiplexing.

4       Describe the differences between wave attenuation and wave absorption.

5  (a)  Briefly describe the basic functions of a standard telephone set.
   (b)  What is the purpose of RJ-11 connector?

6       Write short notes on:
   (a)  Roaming and handoffs.
   (b)  IS-41 standard.

7  (a)  What is Morse code? Explain why it is inadequate for modern day data
        communication networks.
   (b)  Describe, what is meant by error control? Give the classification of errors.

8  (a)  Describe digital service unit and channel service unit.
   (b)  Explain voice-band data communication modems.

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**3**

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## DATA COMMUNICATION SYSTEMS
(Computer Science and Systems Engineering)

Time: 3 hours       Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
*****

1  (a)  Write short notes on connection oriented protocol.
   (b)  Name the various transmission models and explain.

2  (a)  Explain the different types of coupling losses.
   (b)  Explain the different types of absorption losses.

3  Explain time-division multiplexing with neat sketch.

4  (a)  Explain the techniques of terrestrial propagation of electromagnetic waves.
   (b)  Describe a satellite footprint with neat diagram.

5  (a)  Where in a telephone system is the local loop?
   (b)  What is the difference between transmission level point and data level point?
   (c)  What are the designations used with loading coils?

6  (a)  What are the essential components of a cellular telephone system?
   (b)  Why was a honeycomb pattern selected for a cell area?

7  List and explain the data communications character codes.

8  Explain asynchronous voice-band modems with neat diagram.

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**4**

B.Tech II Year II Semester (R09) Regular & Supplementary Examinations, April/May 2013
**DATA COMMUNICATION SYSTEMS**
(Computer Science and Systems Engineering)

Time: 3 hours      Max Marks: 70

Answer any FIVE questions
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*****

1      Define digital modulation and explain with neat diagram.

2  (a)   Explain metallic transmission line types with examples.
   (b)   Briefly describe modes of propagation and index profile of optical fiber cable.

3      List and describe the various frame synchronization technique.

4  (a)   Differentiate space wave propagation and sky wave propagation.
   (b)   Describe a spherical wave front.

5      What are transmission parameters and private line circuits and explain them?

6      Explain the following:
   (a)   USDC digital voice channel.
   (b)   Time-division multiple accessing.

7      Explain the functions of error correction.

8      Define modem control and explain briefly.

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